

Use Attainability Analysis

for

WBID 0613 West Fork Locust Creek

Submitted by Pickett Ray and Silver

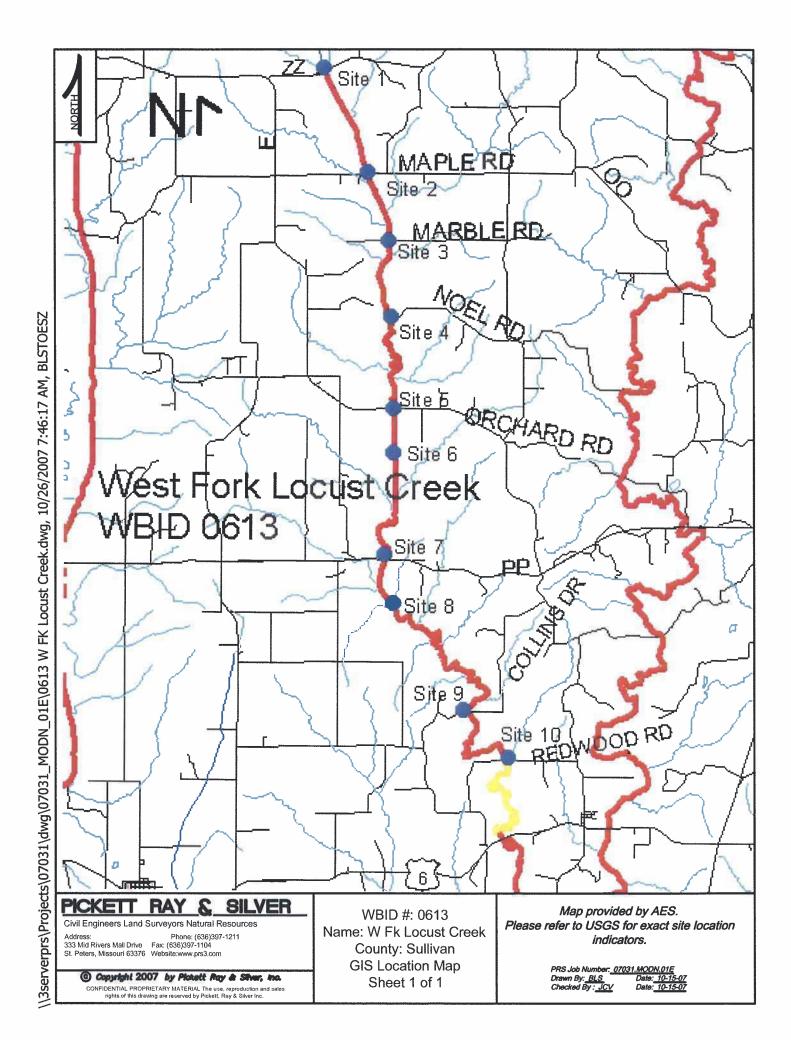
To Missouri Department of Natural Resources Water Protection Program

Date Received: October 31, 2007

		Missouri Departneent Data Sheets for Recreational Use Stream Surveys Natural Resources
	A	Departneent Data Sheets for Recreational Use Stream Surveys
도		Natural Resources

	Data Sneet A – water Body Identification
I. V	Water Body Information (For water body being surveyed)
	Water Body Name (from USGS 7.5' quad): West Fork Locust Creek
]	Missouri Water Body Identification (WBID) Number: 0613
:	8-digit HUC: 20090415 County: Sullivan
1	Upstream Legal Description (from Table H): 33, 64N, 21W
]	Downstream Legal Description (from Table H): Hwy 6
	Number of sites evaluated: 10
	List all sites numbers, listed consequently upstream to downstream: 0613_01 Hwy ZZ Bridge, 0613_02 Maple Rd, 0613_03 Marble Rd, 0613_04 Noel Rd, 0613_05 Hwy E Bridge, 0613_06 150m downstream of site 05, 0613_07 Hwy PP Bridge, 0613_08 150m downstream of site 07, 0613 09 Collins Rd, 0613 10 Redwood Rd
	Site Locations Map(s): Attach a map of the entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.
II. <u>F</u>	Facility Information (list all permitted discharges to the water body segment)
	Facility Name(s) and Permit Number(s): PSF Locust Ridge – MO 0118494
III <u>.</u>	UAA Surveyor (please print legibly)
]	Name of Surveyor: Renee Martin Telephone Number: 573-875-7844
(Organization/Employer: Applied Environmental Solutions
	ase verify that you have completed all sections, checked all applicable boxes, and that the form is applete.
Sign	ned:Date:

Data Sheet A Revised: September 4, 2007 Page 1 of 1



Q		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
4	A	Department of
Œ		Natural Resourges Sheet B – Site Characterization

Date & Time: 9/18/07 14:00 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): Hwy ZZ Bridge						
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge						
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494						
Drought Conditions?: No drought x; Phase I □; Phase II □; Phase IV □; Unknown □							

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)											
Site 01	Easting (UTM X): 0477271	Northing (UTM Y): 4461666	Horizontal Accuracy: (EPE / FOM / PDOP)	18 feet							
Site 11	Easting (UTM X): 0477302	Northing (UTM Y): 4461494	Horizontal Accuracy: (EPE / FOM / PDOP)	19 feet							

Photos:

10105.					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_148	upstream	101_149	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing							
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting							
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:							
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)											

Data Sheet B Page 1 of 3

	epartment o)I	for Recreational Us						
IV.			Site Characterizati			of interest			
☐ City/county pa			MDC conservation lands	Urban a			al Residential		
☐ Campgrounds			National forests	□ Nature 1		☐ Stairs/walkway			
☐ Boating access		1	No trespass sign	X Steep sle		☐ Othe			
Comments:									
Evidence of Huma				1					
☐ Roads	☐ Foot p	aths/prints	☐ Dock/platform	☐ Camping	Sites [☐ Rope swings			
RV / ATV Tra Comments / Other: none	cks	t/ring	□ NPDES Discharge	☐ Fishing Ta	ackle L	⊥ Livesio	ck Watering		
Substrate*: (These v						1			
% Cobb	le % (Gravel	95% Sand	% Silt	5% Mud/	Clay	% Bedrock		
Aquatic Vegetatio	n*: (Note amount o	f vegetation or alg	al growth at the assessment site)					
Water Characteri	,	***							
Odor:	☐ Sewage	☐ Musky	☐ Chemical	X None	☐ Oth				
Color:	X Clear	☐ Green	☐ Gray	☐ Milky	☐ Oth	ner:			
Bottom Deposit:	☐ Sludge	□ Solids	X Fine sediments	□ None	☐ Oth	ner:			
Surface Deposit:	□ Oil	□ Scum	☐ Foam	X None	☐ Oth	ner:			

Data Sheet B Page 2 of 3

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Comments: (Please record any additional comments here.)

Q		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resourcest B – Site Characterization (continued)
4	A	Department of
도		Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.											
Surveyor's Signature:	Date of Survey:_9/18/07										
Organization: Applied Environmental Solutions	Position: Environmental Speciali	st									

Data Sheet B Page 3 of 3

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

		Mis	sour	i														Dissol	lved Ox	ygen		
	Waterb	™ De _l	p <mark>art</mark> rí tural	ri <mark>ent c</mark> Reso	of urce:	Site #:		1								Date:	9/18/2	2007		Time:	14	:00
	Waterhood Department of Site #: Latural Resources (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM)												D	oissolved (07	(mg/L)						
		UTM X: UTM X:							euracy Es 4461666 4461494	<u>`</u>		OOP / FC +/- +/-	ом) <u>18</u> 19	(feet)		D	oissolved (Oxygen:	n:(% sat)		.(% sat)	
		e Stream V				•		(meters)		ength of	•			•	(meters)		Specifi	c Cond:	25	8.2	(μS/cm))
		ermne Len						<u>inicicis)</u>		0x avera	-	_	130		(inecess)	Wa	ater Temp	erature:	21	1.5	(°C)	
	Field Staff: Jennifer Hrabik and Justyn Foth																					
			1		1					Trans	sect Cro	oss-Sect	ion									
		01		02	0	3	0	4	0	5	0	6	0	7	0	8	09	9	10		11	
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.40	0.13	0.25	0	0.27	0	0.15	0	0.52	0	0.19	0	0.14	0	0.23	0	0.03	0.01	0.48	0.08	0.50	0
2	0.80	0.24	0.50	0	0.54	0	0.30	0	1.04	0	0.38	0	0.28	0	0.46	0	0.06	0.01	0.96	0.03	1.00	0
3	1.20	0.20	0.75	0	0.81	0	0.45	0	1.56	0	0.57	0	0.42	0	0.69	0	0.09	0.01	1.44	0.04	1.50	0
4	1.60	0.19	1.00	0	1.08	0	0.60	0	2.08	0	0.76	0	0.56	0	0.92	0	0.12	0.01	1.92	0.02	2.00	0
5	2.00	0.18	1.25	0	1.35	0	0.75	0	2.60	0	0.95	0	0.70	0	1.15	0	0.15	0.01	2.40	0.01	2.50	0
6	2.40	0.15	1.50	0	1.62	0	0.90	0	3.12	0	1.14	0	0.84	0	1.38	0	0.18	0.01	2.88	0.05	3.00	0
7	2.80	0.10	1.75	0	1.89	0	1.05	0	3.64	0	1.33	0	0.98	0	1.61	0	0.21	0.01	3.36	0.03	3.50	0
8	3.20	0.09	2.00	0	2.16	0	1.20	0	4.16	0	1.52	0	1.12	0	1.84	0	0.24	0.01	3.84	0.09	4.00	0
9	3.60	0.06	2.25	0	2.43	0	1.35	0	4.68	0	1.71	0	1.26	0	2.07	0	0.27	0.01	4.32	0.15	4.50	0
Right Bank	4.00	0	2.50	0	2.70	0	1.50	0	5.20	0	1.95	0	1.40	0	2.30	0	0.35	0.00	4.80	0.00	5.00	0
riffle, run, or pool)	l I	Pool	I	Ory	D	ry	D	ry	D	ry	D	ry	D	ry	D	ry	Po	ol	Po	ool	D	ry

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as \geq 1)

Signed: Date:	
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Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
Department of
Natural Resourges Sheet B – Site Characterization

Date & Time: 9/18/07 14:30 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): Maple Rd.				
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge				
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494				
Drought Conditions?: No drought x; Phase I □; Phase II □; Phase III □; Phase IV □; Unknown □					

Site Location:

LOCATIO	ON COORDINATES (UNIVERSAL TRAI	NSVERSE MERCATOR PROJECTION,	IN METERS)	
Site 01	Easting (UTM X): 0478275	Northing (UTM Y): 4459186	Horizontal Accuracy: (EPE / FOM / PDOP)	15 feet
Site 11	Easting (UTM X): 0478365	Northing (UTM Y): 4459025	Horizontal Accuracy: (EPE / FOM / PDOP)	21 feet

Photos:

10108:					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_150	upstream	101_151	101_151 downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:
Describe: (Include number of when conducting interviews.)	individuals recreating, photo-de	ocumentation of evidence of recreat	tional uses, etc. Use Data Sheet L	D- Recreational Use Interview

Data Sheet B Page 1 of 3

<u>≰</u> ⊕ Na	atural Rese	// Ы ऽकि€ि€ B-	– Site Characte	rizatio	on (continu	ıed)		
Surrounding Cond	litions*: (Mark a	Il that promote o	r impede recreational us	es. Attach	photos of evide	ence or unusual i	tems of in	terest.)
☐ City/county par			MDC conservation		☐ Urban			Rural Residential
☐ Campgrounds	☐ State 1	parks 🗆	National forests		□ Natur	e trails		Stairs/walkway
☐ Boating accesse	es 🗆 Fence		No trespass sign		X Steep	slopes		Other:
Comments:								
Ev <u>idence of Huma</u>	n Use*: (Attach p	photos and refere	nce in "Photos" section)				
□ Roads	☐ Foot pa	aths/prints	☐ Dock/platforr	n	☐ Campin	g Sites	□ Rop	oe swings
□ RV / ATV Trac	cks	t/ring	☐ NPDES Discl	harge	☐ Fishing	Tackle	□ Liv	estock Watering
none Substrate*: (These va	alues should add up to	0 100%.)						
% Cobble	e % C	Gravel	95% Sand		% Silt	5% Mu	d/Clay	% Bedrock
Aquatic Vegetation none	n*: (Note amount of	vegetation or al	gal growth at the assessr	nent site)				
Water Characteris	stics*: (Mark all th	nat apply.)	☐ Chemica	al	X None	C	Other:	
Color:	X Clear	☐ Green	☐ Gray		☐ Milky	O	Other:	
Bottom Deposit:	☐ Sludge	☐ Solids	X Fine sedi	iments	□ None	O	Other:	
Surface Deposit:	□ Oil	□ Scum	П Боат		X None)ther:	

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

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	Missour _{Field}	Data Sheets for	r Recreational Us te Characterization	e Stream Surveys
4 6	<u>√</u> Department	O†		
E	🖳 Natural Res	AND STAR B - Si	te Characterizati	on (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Please veri complete.	ify that you hav	ve completed	all sections, c	checked all ap	plicable boxe	s, and that the	e form i
r							

Surveyor's Signature: _____ Date of Survey: ____9/22/07_____

Organization: Applied Environmental Solutions Position: Environmental Specialist

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Revised: September 4, 2007

Comments: (Please record any additional comments here.)

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

		Mis	sour	j														Dissolv	ed Oxy	gen		
	Waterb	Mis Dep Nat	oartn	lent o	f urces	Site #:	2									Date:	9/18/2007			Time:	14:30	
, I																	Dissolved	Oxygen:	8.	22	(mg/L)	
		ocation - Ea UTM X: UTM X:										OOP / FO	M) 15 21	(feet)			Dissolved	Oxygen:	93	3.2	.(% sat)	
																	Specifi	ic Cond:	30	8.6	μS/cm))
		e Stream W ermne Leng			3.0		(meters)		-	•	Segment: n width)	150		(meters)		Water Temp	erature:	23	3.1	(°C)	
	F	ield Staff:				Jenr	nifer Hra	bik and	Justyn Fo	oth												
										Tran	sect Cr	oss-Sec	tion									
		01		02	0	13	0	4	0	5	0)6	0	7	0	18	09		1	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.13	0.02	0.47	0	0.32	0	0.38	0	0.50	0	0.25	0	0.26	0	0.52	0	0.16	0.04	0.22	0.10	0.33	0.14
2	0.26	0.02	0.94	0	0.64	0	0.76	0	1.00	0	0.50	0	0.52	0	1.04	0	0.32	0.05	0.44	0.12	0.66	0.24
3	0.39	0.04	1.41	0	0.96	0	1.14	0	1.50	0	0.75	0	0.78	0	1.56	0	0.48	0.06	0.66	0.20	0.99	0.20
4	0.52	0.03	1.88	0	1.28	0	1.52	0	2.00	0	1.00	0	1.04	0	2.08	0	0.64	0.04	0.88	0.18	1.32	0.20
5	0.65	0.04	2.35	0	1.60	0	1.90	0	2.50	0	1.25	0	1.30	0	2.60	0	0.80	0.02	1.10	0.14	1.65	0.33
6	0.78	0.05	2.82	0	1.92	0	2.28	0	3.00	0	1.50	0	1.56	0	3.12	0	0.96	0.01	1.32	0.14	1.98	0.31
7	0.91	0.04	3.29	0	2.24	0	2.66	0	3.50	0	1.75	0	1.82	0	3.64	0	1.12	0.01	1.54	0.11	2.31	0.21
8	1.04	0.03	3.76	0	2.56	0	3.04	0	4.00	0	2.00	0	2.08	0	4.16	0	1.28	0.01	1.76	0.07	2.64	0.18
9	1.17	0.03	4.23	0	2.88	0	3.42	0	4.50	0	2.25	0	2.34	0	4.68	0	1.44	0.01	1.98	0.02	2.97	0.10
Right Bank	1.30	0	4.75	0	3.25	0	3.80	0	5.00	0	2.50	0	2.60	0	5.20	0	1.60	0	2.25	0	3.35	0
Feature Type (riffle, run, or pool)	F	Pool	I	Ory	D	ry	D	ry	D	ry	D	ry	D	ry	D	ry	Poc	1	Po	ool	Po	ool

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as ≥ 1)

Signed:	Date:
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Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
Department of
Natural Resourges Sheet B – Site Characterization

Date & Time: 9/18/07 15:20 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): Marble Rd.					
Current Weather Conditions: cloudy	Facility Name: PSF Locust Ridge					
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494					
Drought Conditions?: No drought x; Phase I □; Phase II □; Phase IV □; Unknown □						

Site Location:

LOCATI	LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)								
Site 01	Easting (UTM X): 0478854	Northing (UTM Y): 4457570	Horizontal Accuracy: (EPE / FOM / PDOP)	14 feet					
Site 11	Easting (UTM X): 0478836	Northing (UTM Y): 4457360	Horizontal Accuracy: (EPE / FOM / PDOP)	19 feet					

Photos:

10108.					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_152	upstream	101_153	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

$Uses\ Observed \hbox{$\star$:}\ ({\it Uses\ actually\ observed\ at\ time\ of\ survey.})$

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing			
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting			
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:			
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)							

Data Sheet B Page 1 of 3

Nat	tural Resource	St B – Site Characte	rization (contin	ued)	
		omote or impede recreational us			nterest.)
☐ City/county park		☐ MDC conservation			Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Natur	re trails	Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	X Steep	slopes	Other:
Comments:					
idence of Human	Use*: (Attach photos and	d reference in "Photos" section)		
□ Roads	☐ Foot paths/pri	nts	m Campir	ng Sites □ Ro	ope swings
□ RV / ATV Track	s	☐ NPDES Discl	narge Fishing	Tackle	vestock Watering
bstrate*: (These value	ues should add up to 100%.)				
% Cobble	% Gravel	90% Sand	% Silt	10% Mud/Clay	% Bedrock
uatic Vegetation Algae willow	*: (Note amount of vegetation	on or algal growth at the assessr	nent site)		
	ics*: (Mark all that apply.)				
Odor:		flusky ☐ Chemica		☐ Other:	
Color:	X Clear	·	☐ Milky	X Other: br	
	□ Sludge □ S	olids X Fine sedi	ments	X Other: ru	st/iron
Surface Deposit:	X Oil X So	cum 🗆 Foam	☐ None	☐ Other:	

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

^{*}This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resourcest B – Site Characterization (continued)
<u> </u>	A	Department of
<u> </u>		Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

	Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)		
Co	omments: (Please record any additional comments here.)							

Please verify that you have completed all secomplete.	ections, checked all applicable box	xes, and that the form
Surveyor's Signature:	Date of Survey:	9/18/07

is

Data Sheet B Page 3 of 3

Organization: Applied Environmental Solutions Position: Environmental Specialists

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

aterboo	γ	souri																			
d 🕀	Dep Nati	artn ural l	l <mark>ent o</mark> Resou	f ur <u>ç</u> es	Site #: (m) (hei	ght betw	reen low	bank wi	dth and v	vater)					Date:	9/18/2	2007		Time:	15:	:20
															D	issolved (Oxygen:	10.	09	(mg/L)	
				orthing (U				•	,			· 1	(feet)		D	issolved (Oxygen:	12	1.0	(% sat)	
11 UTM X: 478836 UTM Y: 4457360 +/- 19 (feet)												on genn			(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
Specific Cond: 446.2 (μS/cm) Average Stream Width: 3.0 (meters) Length of Survey Segment: 150 (meters))									
Average Stream Width: 3.0 (meters) Length of Survey Segment: 150 (meters) (20x average stream width)											meters)	Wa	iter Temp	erature:	23	.6	(°C)				
E;	ald Staff:				Ionn	ifor Uro	hile and	Justum Es	xth.												
Field Staff: Jennifer Hrabik and Justyn Foth																					
Transect Cross-Section																					
)1		02		3		4		5		6		7		8	09	9		0		1
Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	0	0	0	0
0.48	0.08	0.51	0.24	0.12	0.04	0.10	0.01	0.14	0.03	0.50	0.05	0.08	0.01	0.17	0.09	0.40	0.60	0.38	0.11	0.18	0.04
0.96	0.14	1.02	0.46	0.24	0.05	0.20	0.01	0.28	0.03	1.00	0.24	0.16	0.03	0.34	0.12	0.80	>1	0.76	0.15	0.36	0.07
1.44	0.23	1.53	0.60	0.36	0.05	0.30	0.01	0.42	0.03	1.50	0.35	0.24	0.04	0.51	0.15	1.20	>1	1.14	0.18	0.54	0.11
1.92	0.28	2.04	0.59	0.48	0.05	0.40	0.01	0.56	0.01	2.00	0.42	0.32	0.02	0.68	0.18	1.60	>1	1.52	0.25	0.72	0.14
2.40	0.29		0.46		0.05			0.70	0.00			0.40	0.02				>1	1.90	0.23	0.90	0.10
2.88	0.30		0.36		0.05			0.84	0.00			0.48	0.03				>1	2.28	0.20	1.08	0.08
																					0.05
																					0.02
																					0.02
																					0.01
7.00	U	3.10	U	1.20	U	1.03	U	1.40	U	3.00	U	0.00	0.23	1./3	U	4.00	0.43	3.00	U	1.00	U
Po	ool	P	ool	Po	ool	Rı	ın	Rı	ın	Po	ool	Rı	un	Rı	ın	Po	ol	Rı	ın	Rı	un
P (1 2 2 3 3 4 4	PS Loc 01	### Chamfel Ch	Comparison of the Interston of the Int	Compared Chaimel Hickston: Color	Compared Chammel Hickston: Colored Color	Channel Hierstori: 2.0 (m) (heinter thirdstori: 2.0 (heinter thir	Stance (m) Depth (m) Distance (m) Depth (m)	Stance (mi) Depth (m) De	Compared Chamer Hielston: Compared Chamer Hielston:	Comparison Com	Comparison Com	Stance (min) Depth (m) Distance (min) Depth (m) Depth (m	Stance Chained Hickson: Color Color	Continue Chainfel Melsion Chainfel Melsio	Stance Chambel Micksonf: Color Color	Designate Chambel Herison: 2.0 (m) (height between low bank width and water) Designate Chambel Herison: Column Co	Dissolved Commander Comm	Dissolved Oxygen: Diss	Dissolved Oxygen: 10.	Dissolved Oxygen: Diss	Dissolved Oxygen: 10.09 (mg/L)

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as \geq 1)

Signed: Date:

Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
Department of
Natural Resourges Sheet B – Site Characterization

Date & Time: 9/19/07 8:40 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): Noel Rd.				
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge				
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494				
Drought Conditions?: No drought x; Phase I □; Phase II □; Phase IV □; Unknown □					

Site Location:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)							
Site 01	Easting (UTM X): 0478903	Northing (UTM Y): 4455629	Horizontal Accuracy: (EPE / FOM / PDOP)	30 feet			
Site 11	Easting (UTM X): 0478876	Northing (UTM Y): 4455434	Horizontal Accuracy: (EPE / FOM / PDOP)	20 feet			

Photos:

10105.					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_154	upstream	101_155	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing		
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting		
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:		
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)						

Data Sheet B Page 1 of 3

<u>⊈</u> ⊕ Na	atural Resa		- Site Characteriz	ation (continu	ıed)			
Surrounding Cond						ems of interest.)	
☐ City/county par			MDC conservation lar				l Residential	
☐ Campgrounds	☐ State	parks 🗆 🗆	National forests	□ Nature	e trails	☐ Stairs	s/walkway	
☐ Boating accesse	es	,	No trespass sign	X Steep	slopes	□ Othe	r:	
Comments:								
Evidence of Huma	n Use*: (Attach	photos and refere	nce in "Photos" section)					
☐ Roads	☐ Foot p		☐ Dock/platform	☐ Camping	g Sites	☐ Rope sw	/ings	
□ RV / ATV Trac			☐ NPDES Dischar		_	☐ Livestoc	ck Watering	
Comments / Other: none								
Substrate*: (These va	alues should add up to	o 100%.)				_		
% Cobble		Gravel	70% Sand	% Silt	30% Mud	/Clay	% Bedrock	
Arrowhead Water primrose	n*: (Note amount of	`vegetation or alg	al growth at the assessment	site)				
Water Characteris	stics*: (Mark all th ☐ Sewage	nat apply.) Musky	□ Chemical	X None	□ Oti	her:		
Color:	X Clear	☐ Green	☐ Gray	☐ Milky	X Oth	Other: brown		
Bottom Deposit:	☐ Sludge	□ Solids	X Fine sedime	ents 🗆 None	□ Oti	her:		
Surface Deposit:	□ Oil	☐ Scum	☐ Foam	X None	☐ Oti	her:		

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

^{*}This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

Q		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resourcest B – Site Characterization (continued)
4	A	Department of
<u> </u>		Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

\mathbf{C}_{0}	Comments: (Please record any additional comments here.)				
	Rained last night				
	Rained last night				

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature:	Date of Survey:9/19/07
Organization: Applied Environmental Solutions	Position: Environmental Specialist

Data Sheet B Page 3 of 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

		ः Mis	sour	i												Dissolved Oxygen						
	Water Letter	Der	oartn ural	f <mark>lent o</mark> Resoi	if urçes	Site #: $S_{(m) \text{ (heiseline)}}$			bank wi	dth and v	vater)					Date:	9/19/	2007		Time:	8:	40
		ocation - Ea				_						OP / FO	M)			D	issolved	Oxygen:	4.	.19	(mg/L)	
		UTM X: UTM X:				. 1	, Honzo UTM Y: UTM Y:		4455629 4455434)		+/-	30	(feet)		D	issolved	Oxygen:	45	5.5	.(% sat)	
				4/88/6		-							20	(feet)			Specif	ic Cond:	22	5.4	μS/cm))
		ge Stream W termne Leng		each)	6.0		((meters)		ength of a	•	_		50	(meters)	W:	ater Temp	erature:	10	9 1	(°C)	
	ľ	·		,							ge streur	ii widiii)				,,,	ater rem	octutui c.			(0)	
		Field Staff:				Jenr	nifer Hra	bik and	Justyn Fo	oth				-								
										Trans	ect Cro	ss-Sect	ion									
		01		02	()3	0	4	0	5	O	6	0	7	0	8	0	9	1	10	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.35	0.04	0.61	0.05	0.56	0.19	0.50	0.30	0.78	0.20	0.78	0.22	0.56	0.10	0.57	0.11	0.44	0.14	0.62	0.10	0.70	0.27
:	0.71	0.08	1.22	0.08	1.12	0.25	1.00	0.50	1.56	0.23	1.56	0.23	1.12	0.25	1.14	0.12	0.89	0.26	1.25	0.28	1.40	0.90
:	1.06	0.09	1.83	0.09	1.68	0.27	1.50	0.47	2.34	0.27	2.34	0.21	1.68	0.45	1.71	0.28	1.33	0.35	1.87	0.37	2.10	0.85
•	1.42	0.05	2.44	0.07	2.24	0.35	2.00	0.26	3.12	0.24	3.12	0.24	2.24	0.68	2.28	0.30	1.78	0.30	2.50	0.40	2.80	0.81
:	5 1.77	0.03	3.05	0.05	2.80	0.36	2.50	0.41	3.90	0.24	3.90	0.30	2.80	0.50	2.85	0.36	2.22	0.40	3.12	0.31	3.50	0.72
(6 2.13	0.02	3.66	0.15	3.36	0.28	3.00	0.24	4.68	0.14	4.68	0.44	3.36	0.54	3.42	0.48	2.67	0.51	3.75	0.28	4.20	0.50
,	7 2.48	0.02	4.27	0.22	3.92	0.15	3.50	0.16	5.46	0.12	5.46	0.65	3.92	0.40	3.99	0.59	3.11	0.22	4.37	0.25	4.90	0.35
:	2.84	0.00	4.88	0.28	4.48	0.11	4.00	0.09	6.24	0.15	6.24	0.60	4.48	0.21	4.56	0.33	3.56	0.08	5.00	0.29	5.60	0.29
9	3.19	0.01	5.49	0.34	5.04	0.08	4.50	0.05	7.02	0.10	7.02	0.35	5.04	0.08	5.13	0.18	4.00	0.03	5.62	0.24	6.30	0.11
Right Bank	3.55	0	6.10	0	5.60	0	5.00	0	7.80	0	7.80	0	5.60	0	5.70	0	4.45	0	6.25	0	7.00	0
Feature Type	15	Run	п	Run	D,	ool	Rı	un	D,	un	ъ	un	D,	ool	Po	201	Rı	ın	D,	ool	D,	ool
(riffle, run, or poo	1)	IXUII	<u>r</u>	XuII		UUI	I.	uii	А	um		uii	Г	ЮІ	Г	<i>7</i> 01	K	411	Г	ЮІ		JUI

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as ≥ 1)

Signed: Date:

Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
Department of
Natural Resourges Sheet B – Site Characterization

Date & Time: 9/19/07 9:30 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): Hwy E Bridge
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494
Drought Conditions?: No drought x; Phase I □; Phase II □; P	hase III □; Phase IV □; Unknown □

Site Location:

LOCATIO	ON COORDINATES (UNIVERSAL TRAI	NSVERSE MERCATOR PROJECTION,	IN METERS)	
Site 01	Easting (UTM X): 478960	Northing (UTM Y): 4453527	Horizontal Accuracy: (EPE / FOM / PDOP)	17 feet
Site 11	Easting (UTM X): 478957	Northing (UTM Y): 4453307	Horizontal Accuracy: (EPE / FOM / PDOP)	24 feet

Photos:

10108.					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_156	upstream	101_157	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:
Describe: (Include number of when conducting interviews.)	individuals recreating, photo-de	ocumentation of evidence of recreat	tional uses, etc. Use Data Sheet L	D- Recreational Use Interview

Data Sheet B Page 1 of 3

Nati	ural Reseausae	et B – Site Characteriz	ation (continu	ıed)	
		mote or impede recreational uses. A			s of interest.)
☐ City/county parks	☐ Playgrounds	☐ MDC conservation lan			☐ Rural Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Natur	e trails	☐ Stairs/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	X Steep	slopes	☐ Other:
		d reference in "Photos" section)			
□ Roads	☐ Foot paths/prin	nts Dock/platform	☐ Camping	g Sites	Rope swings
RV / ATV Tracks Comments / Other:	☐ Fire pit/ring	☐ NPDES Discharg	ge	Tackle	Livestock Watering
ostrate*: (These value	es should add up to 100%.)				
% Cobble	1% Gravel	80% Sand	% Silt	19% Mud/C	Clay % Bedrock
uatic Vegetation* Willows Duckweed	: (Note amount of vegetation	n or algal growth at the assessment	site)		
ater Characteristic			W N		
	Sewage	•	X None	☐ Other	
	☐ Clear ☐ G	•	☐ Milky	X Other	
	☐ Sludge ☐ Se	olids X Fine sedime	nts	☐ Other	r:
Surface Deposit:	□ Oil □ Se	cum 🗆 Foam	X None	☐ Other	r:

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

^{*}This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

	====	Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resourcest B – Site Characterization (continued)
	A	Department of
<u> </u>		Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

D : 11 / 11			
Rained last night			

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature:		Date of Survey:	9/19/07
Organization: Applied E	nvironmental Solutions	Position: Envi	ronmental Specialist

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C	- Field Survey	Results
Data Sheet C	I icia Sui vey	itesuits

		∥ IVIIS	sour															Disso	lved Ox	rygen		
	Waterbo	Mis Dep Nat	oartn ^e	ient o	f ur <u>ç</u> es	Site #: (m) (hei	ght betw	veen low	bank wi	dth and v	water)					Date:		2007	•	Time:	9:	30
									_							D	issolved	Oxygen:	6.	59	(mg/L)	
		cation - Ea UTM X: UTM X:					, Horizoi JTM Y: JTM Y:		uracy Est <u>4453527</u> 4453307	· ` `		OP / FO	M) 17 24	(feet)	•	D	issolved	Oxygen:	70	0.6	(% sat)	
	111	UTWI A.		4/093/		- '	JIWII.		4433307			T/-	24	(leet)	•		Specif	ic Cond:	31	8.0	(µS/cm)	
	Average	e Stream W	idth:		7.0		(meters)	Le	ength of	Survey S	Segment:	1	50	(meters)		~				(1)	
	(To dete	ermne Leng	gth of Re	ach)					(20	0x averaș	ge strear	n width)				W	ater Temp	perature:	18	3.6	(°C)	
	F	ield Staff:				Jenr	nifer Hra	bik and .	Justyn Fo	oth				-								
										Trans	ect Cro	ss-Sect	ion									
		0.1		0.2		12		_						\ 		.0		•			-	1
	Distance	01	Distance	02	Distance)3 	0 Distance	4	0 Distance	<u> </u>	Distance) <u>6</u>	Distance)7 	Distance	8	0	9 	Distance	10 	1 Distance	1
Station	(m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)	Distance (m)	Depth (m)	(m)	Depth (m)	(m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0.55	0	0	0	0	0	0	0	0	0	0	0	0
1	0.83	0.17	0.59	0.20	0.65	0.35	0.79	0.55	0.72	0.59	0.51	0.11	0.60	0.08	0.70	0.56	0.57	0.16	0.36	0.09	0.97	0.18
2	1.66	0.12	1.19	0.17	1.30	0.45	1.58	0.52	1.44	0.50	1.02	0.18	1.21	0.19	1.40	0.30	1.14	0.20	0.72	0.20	1.95	0.25
3	2.49	0.14	1.78	0.22	1.95	0.62	2.37	0.55	2.16	0.32	1.53	0.09	1.81	0.19	2.10	0.35	1.71	0.30	1.08	0.31	2.92	0.25
4	3.32	0.13	2.38	0.24	2.60	0.64	3.16	0.46	2.88	0.29	2.04	0.02	2.42	0.20	2.80	0.22	2.28	0.37	1.44	0.38	3.90	0.31
-	4.15	0.00	2.97	0.20	3.25	0.61	3.95	0.38	3.60	0.21	2.55	0.02	3.02	0.20	3.50	0.20	2.85	0.46	1.80	0.39	4.87	0.30
3			,,																			
6	4.98	0.00	3.57	0.18	3.90	0.66	4.74	0.20	4.32	0.20	3.06	0.19	3.63	0.28	4.20	0.26	3.42	0.55	2.16	0.49	5.85	0.33
7	5.81	0.00	4.16	0.14	4.55	0.64	5.53	0.19	5.04	0.20	3.57	0.24	4.23	0.33	4.90	0.30	3.99	0.54	2.52	0.40	6.82	0.31
8	6.64	0.25	4.76	0.15	5.20	0.46	6.32	0.19	5.76	0.16	4.08	0.25	4.84	0.30	5.60	0.34	4.56	0.60	2.88	0.20	7.80	0.35
9	7.47	0.18	5.35	0.14	5.85	0.18	7.11	0.06	6.48	0.08	4.59	0.30	5.44	0.18	6.30	0.31	5.13	0.28	3.24	0.10	8.77	0.15
Right Bank	8.30	0	5.95	0	6.50	0	7.90	0	7.20	0	5.10	0	6.05	0	7.00	0	5.70	0	3.60	0	9.75	0
Feature Type																						
(riffle, run, or pool)	I	Run	F	Run	Po	ool	Po	ool	Po	ool	R	un	R	un	Po	ool	Po	ool	R	un	Po	ool

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as ≥ 1)

Signed: Date:

		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
	A	Department of
<u> </u>	Φ	Natural Resourges Sheet B – Site Characterization

Date & Time: 9/19/07 10:00 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): 150m downstream of site 05							
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge							
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494							
Drought Conditions?: No drought x; Phase I □; Phase II □; Phase IV □; Unknown □								

Site Location:

LOCATION	LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)											
Site 01	Easting (UTM X): 0478950	Northing (UTM Y): 4453179	Horizontal Accuracy: (EPE / FOM / PDOP)	23 feet								
Site 11	Easting (UTM X): 0478939	Northing (UTM Y): 4452987	Horizontal Accuracy: (EPE / FOM / PDOP)	19 feet								

Photos:

10108:								
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose			
101_158	upstream	101_159	downstream					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose			
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose			

Uses Observed*: (Uses actually observed at time of survey.)

ses Observeu": (Uses acti	ially observed at time of survey	7.)		
☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:
Describe: (Include number of when conducting interviews.)	individuals recreating, photo-do	ocumentation of evidence of recreat	cional uses, etc. Use <i>Data Sheet L</i>	- Recreational Use Interview

Data Sheet B Page 1 of 3

<u>⊈</u> ⊕ Na	tural Resound	€€t B -	- Site Characterization	on (contin	ued)		
rrounding Cond	itions*: (Mark all that	promote or	impede recreational uses. Attac	h photos of evid	ence or unusual i	tems of int	erest.)
☐ City/county par			MDC conservation lands	☐ Urbaı			Rural Residential
☐ Campgrounds	☐ State park	s 🗆 1	National forests	☐ Natur	e trails		Stairs/walkway
☐ Boating accesse	s		No trespass sign	X Steep	slopes		Other:
	n Use*: (Attach photos				G.,		
☐ Roads ☐ RV / ATV Trac	□ Foot paths/		☐ Dock/platform☐ NPDES Discharge	☐ Campin☐ Fishing		_	estock Watering
none bstrate*: (These va	lues should add up to 1009	(o.)					
% Cobble	% Grave	:1	80% Sand	% Silt	20% Mu	d/Clay	% Bedro
uatic Vegetation	1*: (Note amount of vege	ation or alg	gal growth at the assessment site				
ater Characteris	tics*: (Mark all that ap	oly.) Musky	☐ Chemical	X None	□ c	other:	
Color:	X Clear	Green	☐ Gray	☐ Milky		ther:	
Bottom Deposit:		Solids	X Fine sediments	□ None		ther:	
Surface Deposit:		Scum	П Боат	X None	ПО	ther.	

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

^{*}This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

	Missour <u>field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resource B – Site Characterization (continued)
	Department of
E @	Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
		<u>l</u>			

nments: (Please record any	additional comments here.)		
Rained last night			

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signa	ature:	Date of Survey:9/19/07	_
Organization:	Applied Environmental Solutions	Position: Environmental Specialist	

Data Sheet B Page 3 of 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet	C - Field	Survey Results
Data Sheet	C I ICIU	bulley itesuits

		Mis 📰	sour	i												Dissolved Oxygen						
	₩aterb	Mis Dep	o <mark>artn</mark> ural	lent o Resoi	f urces	Site #:										Date:	9/19/	2007		Time:	10	:00
·						-										D	issolved	Oxygen:	5.	09	(mg/L)	
	GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: 478950 UTM Y: 4453179 +/- 23 (feet) 11 UTM X: 478939 UTM Y: 4452987 +/- 19 (feet)											D	issolved	Oxygen:	55	5.5	(% sat)					
													(meters)		Specif	ic Cond:	35	3.9	(μS/cm)			
	_	ermne Leng			3,2			incters)		0x averag	-	-		<u> </u>	(meters)	Wa	ater Temp	erature:	19	9.7	(°C)	
	Field Staff: Jennifer Hrabik and Justyn Foth																					
										Trans	ect Cro	ss-Sect	ion									
		01		02	()3	0	4	0	5	C)6	C)7	()8	0	9	10		11	
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.25	0.08	0.24	0.15	0.78	0.16	0.30	0.08	0.28	0.01	0.51	0.11	0.37	0.08	0.25	0.07	0.12	0.03	0.23	0.03	0.46	0.08
2	0.50	0.05	0.48	0.17	1.56	0.12	0.60	0.13	0.56	0.02	1.02	0.23	0.74	0.13	0.50	0.10	0.24	0.05	0.46	0.05	0.92	0.11
3	0.75	0.06	0.72	0.15	2.34	0.04	0.90	0.15	0.84	0.07	1.53	0.16	1.11	0.12	0.75	0.10	0.36	0.06	0.69	0.09	1.38	0.09
4	1.00	0.04	0.96	0.13	3.12	0.16	1.20	0.06	1.12	0.11	2.04	0.16	1.48	0.11	1.00	0.10	0.48	0.05	0.92	0.10	1.84	0.12
5	1.25	0.05	1.20	0.10	3.90	0.22	1.50	0.05	1.40	0.16	2.55	0.17	1.85	0.15	1.25	0.08	0.60	0.05	1.15	0.10	2.30	0.13
6	1.50	0.05	1.44	0.09	4.68	0.29	1.80	0.14	1.68	0.17	3.06	0.19	2.22	0.09	1.50	0.07	0.72	0.04	1.38	0.08	2.76	0.10
7	1.75	0.09	1.68	0.08	5.46	0.20	2.10	0.15	1.96	0.15	3.57	0.15	2.59	0.06	1.75	0.06	0.84	0.05	1.61	0.06	3.22	0.07
8	2.00	0.08	2.16	0.05	7.02	0.14	2.40	0.12	2.24	0.12	4.08	0.10	2.96 3.33	0.02	2.00	0.04	0.96 1.08	0.03	2.07	0.03	3.68 4.14	0.04
Right Bank	2.50	0.04	2.40	0.03	7.80	0.23	3.00	0.04	2.80	0.09	5.10	0.08	3.70	0.02	2.50	0.02	1.20	0.02	2.30	0.01	4.60	0.02
Feature Type (riffle, run, or pool)]	Run	F	Run	R	un	R	un	Rı	un	R	un	R	un	R	un	Rif	fle	R	un	R	un

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as ≥ 1)

Signed:	Date:	
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		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
	A	Department of
<u> </u>	Φ	Natural Resourges Sheet B – Site Characterization

Date & Time: 9/19/07 11:00 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): Hwy. PP Bridge				
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge				
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494				
Drought Conditions?: No drought x; Phase I □; Phase II □; P	hase III □; Phase IV □; Unknown □				

Site Location:

LOCATI	LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)											
Site 01	Easting (UTM X): 0478745	Horizontal Accuracy: (EPE / FOM / PDOP)	16 feet									
Site 11	Easting (UTM X): 0478682	Northing (UTM Y): 4449705	Horizontal Accuracy: (EPE / FOM / PDOP)	22 feet								

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose				
101_161	upstream	101_162	downstream						
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose				

$Uses\ Observed \hbox{$\star$:}\ ({\tt Uses\ actually\ observed\ at\ time\ of\ survey.})$

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:
Describe: (Include number of when conducting interviews.)	individuals recreating, photo-de	ocumentation of evidence of recreat	ional uses, etc. Use <i>Data Sheet L</i>	D- Recreational Use Interview

Data Sheet B Page 1 of 3

<u>⊈</u> ⊕ Na	atural Ress	}Ы % БАР ЕБЕВ —	Site Characteriz	ation (continu	ıed)			
urrounding Cond						ems of interest.))	
☐ City/county par			MDC conservation lan			☐ Rural Residential		
☐ Campgrounds	☐ State	parks 🗆 1	National forests	□ Nature	e trails	☐ Stairs	s/walkway	
☐ Boating accesse	es 🗆 Fenc	e	No trespass sign	X Steep s	slopes	☐ Othe	r:	
Comments:								
vidence of Huma	n Use*: (Attach	photos and referer	ace in "Photos" section)					
☐ Roads		paths/prints	☐ Dock/platform	☐ Camping	g Sites	☐ Rope sw	ings	
□ RV / ATV Trac			☐ NPDES Discharg			☐ Livestoc		
none								
ubstrate*: (These va	alues should add up t	to 100%.)						
% Cobble	e %	Gravel	60% Sand	% Silt	40% Mud	/Clay	% Bedrock	
quatic Vegetation	1*: (Note amount o	f vegetation or alg	al growth at the assessment	site)				
Vater Characteris	stics*: (Mark all t □ Sewage	that apply.)	☐ Chemical	X None	□ Otl	her:		
Color:	□ Clear	☐ Green		☐ Milky		ner: brown		
Bottom Deposit:		□ Solids	X Fine sedimen		□ Otl			
Surface Deposit:	□ Oil	☐ Scum	☐ Foam	X None	☐ Otl	her:		

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

^{*}This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resourcest B – Site Characterization (continued)
<u> </u>	A	Department of
<u> </u>		Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)			

Comments: (Please record any additional comments here.)	
Rained last night	
Please verify that you have completed all sections, complete.	checked all applicable boxes, and that the form is
Surveyor's Signature:	Date of Survey:9/19/07
Organization: Applied Environmental Solutions	Position: <u>Environmental Specialist</u>

Data Sheet B Page 3 of 3

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

Missour	î						Dissolved Oxygen						
Departn Matural	hent o f ^{Sit} "Resources _…	e #: 7		votor)			Date: 9/19/2007	Time:	11:00				
Estimated Chamier meisio	(III) (neight between it	ow bank width and w	(atti)			Dissolved Oxygen:	4.64	_(mg/L)				
GPS Location - Easting (U	JTM X), Northing (UT	M Y), Horizontal A	ccuracy Estimate (El	PE / PDOP / FON	1)								
01 UTM X:	478745	UTM Y:	4449921	+/-	16	(feet)	Dissolved Oxygen:	49.6	(% sat)				
11 UTM X:	478682	UTM Y:	4449705	+/-	22	(feet)	_		_				
							Specific Cond:	315.3	(µS/cm)				
Average Stream Width:	8.0	(meter	s) Length of S	Survey Segment:	160	(meters)	_		_				
(To determne Length of Ro	each)		(20x averag	e stream width)			Water Temperature:	18.9	_(°C)				
Field Staff:		Jennifer Hrabik an	d Justyn Foth										

		Transect Cross-Section																						
	01		01		01 02		03		0	04		5	0	6	0	7	0	8	09	9	1	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)		
Left Bank	0	0	0	0	0	0.31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1	0.58	0.50	1.00	0.30	0.98	0.31	1.10	0.35	1.10	0.18	1.20	0.60	1.20	0.50	1.20	0.55	0.50	0.03	0.07	0.02	0.18	0.01		
2	1.16	0.78	2.00	0.64	1.96	0.45	2.20	0.50	2.20	0.25	2.40	>1	2.40	>1	2.40	>1	1.00	0.02	0.14	0.01	0.36	0.02		
3	1.74	0.98	3.00	0.85	2.94	0.50	3.30	0.44	3.30	0.22	3.60	>1	3.60	>1	3.60	>1	1.50	0.04	0.21	0.02	0.54	0.01		
4	2.32	1.00	4.00	0.92	3.92	0.50	4.40	0.60	4.40	0.31	4.80	0.94	4.80	>1	4.80	>1	2.00	0.02	0.28	0.03	0.72	0.01		
5	2.90	0.83	5.00	0.87	4.90	0.54	5.50	0.44	5.50	0.23	6.00	0.90	6.00	0.90	6.00	0.95	2.50	0.00	0.35	0.03	0.90	0.01		
6	3.48	0.55	6.00	0.85	5.88	0.46	6.60	0.36	6.60	0.26	7.20	0.98	7.20	0.88	7.20	0.89	3.00	0.00	0.42	0.04	1.08	0.01		
7	4.06	0.36	7.00	0.76	6.86	0.41	7.70	0.25	7.70	0.31	8.40	0.92	8.40	0.87	8.40	0.84	3.50	0.09	0.49	0.03	1.26	0.02		
8	4.64	0.15	8.00	0.62	7.84	0.38	8.80	0.21	8.80	0.30	9.60	0.83	9.60	0.75	9.60	0.80	4.00	0.11	0.56	0.02	1.44	0.02		
9	5.22	0.08	9.00	0.33	8.82	0.33	9.90	0.16	9.90	0.32	10.80	0.50	10.80	0.50	10.80	0.60	4.50	0.12	0.63	0.01	1.62	0.02		
Right Bank	5.80	0	10.00	0	9.80	0	11.00	0	11.20	0	12.00	0	12.00	0	12.00	0	5.00	0	0.70	0	1.80	0		
Feature Type																								
(riffle, run, or pool)	P	Pool	P	ool	Po	ool	Po	ol	Po	ol	Po	ool	Po	ool	Po	ool	Rı	ın	Rif	ffle	R	un		

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as ≥ 1)

Signed: Date:	Signed:
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		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
	A	Department of
<u> </u>	Φ	Natural Resourges Sheet B – Site Characterization

Date & Time: 9/19/07 11:45 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): 150m downstream of site 07		
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge		
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494		
Drought Conditions?: No drought x; Phase I □; Phase II □; Phase IV □; Unknown □			

Site Location:

··· = · · · · · · · · · · · · · · · · ·					
LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)					
Site 01	Easting (UTM X): 0478617	Northing (UTM Y): 4449534	Horizontal Accuracy: (EPE / FOM / PDOP)	19 feet	
Site 11	Easting (UTM X): 0478648	Northing (UTM Y): 4449348	Horizontal Accuracy: (EPE / FOM / PDOP)	22 feet	

Photos:

101.05.					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_163	upstream	101_164	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

es observed at time of survey.)						
☐ Swimming	☐ Skin diving ☐ SCUBA diving		☐ Tubing	☐ Water skiing		
☐ Wind surfing	☐ Kayaking	☐ Boating	☐ Wading	☐ Rafting		
☐ Hunting	☐ Trapping	☐ Fishing X None of the abov		☐ Other:		
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)						
1						

Data Sheet B Page 1 of 3

⊈ ⊕ Na	atural Ress) 1976 B -	- Site Characteriz	ation (continu	ued)		
			impede recreational uses. A			ems of interes	t.)
☐ City/county par			MDC conservation lan				al Residential
☐ Campgrounds	☐ State	parks 🗆 1	National forests	☐ Natur	re trails	☐ Stai	rs/walkway
☐ Boating accessor	es 🗆 Fenc	e 🔲 1	No trespass sign	X Steep	slopes	□ Oth	er:
Comments:							
vidence of Huma	n Use*: (Attach	photos and refere	nce in "Photos" section)				
☐ Roads		oaths/prints	☐ Dock/platform	☐ Campin	g Sites	☐ Rope s	wings
□ RV / ATV Trac	cks	it/ring	☐ NPDES Discharg	ge	Tackle	☐ Livesto	ock Watering
Comments / Other:				- 1			
none							
ubstrate*: (These va	alues should add up t	o 100%.)					
% Cobble	e %(Gravel	60% Sand	% Silt	40% Muc	d/Clay	% Bedrock
						l l	
quatic Vegetation	n*: (Note amount o	of vegetation or alg	gal growth at the assessment	site)			
Duckweed							
Algae							
Vater Characteris	stics*: (Mark all t	hat apply.)					
Odor:	☐ Sewage	☐ Musky	☐ Chemical	X None	□ Ot	ther:	
Color:	□ Clear	☐ Green	☐ Gray	☐ Milky	X Ot	her: brown	
Bottom Deposit:	☐ Sludge	☐ Solids	X Fine sedime	ents 🗆 None	☐ Ot	ther:	
Surface Deposit:	□ Oil	☐ Scum	☐ Foam	X None	□ Ot	ther:	

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

^{*}This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

	====	Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resourcest B – Site Characterization (continued)
	A	Department of
<u> </u>	\square	Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Rained last night			

Organization: <u>Applied Environmental Solutions</u> Position: <u>Environmental Specialist</u>

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

		₌≘ Mis	sour	i														Disso	lved Ox	tygen		
	Water £	Der Nat	oartn ural	f <mark>ent o</mark> Resou	if urçes				hank wi	dth and y	vater)					Date:	9/19/	2007		Time:	11	:45
						_						OD / EO	M)			D	issolved	Oxygen:	1.	51	(mg/L)	
						Ţ	UTM Y:		4449534	ļ		+/-	19	(feet)		D	issolved	Oxygen:	18	3.1	(% sat)	
						- ``									(meters)		Specif	ic Cond:	30	5.8	(μS/cm))
		_						(_	-	_		-	()	Wa	ater Temp	erature:	18	3.8	(°C)	
		Field Staff:				Jenr	nifer Hra	bik and	Justyn Fo	oth												
	Partinument Challenge Ch																					
		01		02	()3	0	4	0	5	0	6	0	7	0	8	0	9	1	.0	1	1
Station				Depth (m)		Depth (m)		Depth (m)		Depth (m)		Depth (m)		Depth (m)		Depth (m)	Distance (m)	Depth (m)		Depth (m)		Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.50	0.20	0.47	0.14	0.24	0.01	0.38	0.04	0.19	0.03	0.08	0.01	0.50	0.11	0.24	0.04	0.68	0.10	0.47	0.12	0.15	0.01
	1.00	0.55	0.94	0.19	0.48	0.01	0.76	0.08	0.38	0.16	0.16	0.02	1.00	0.21	0.48	0.06	1.36	0.10	0.94	0.19	0.30	0.01
	3 1.50	0.79	1.41	0.25	0.72	0.01	1.14	0.09	0.57	0.18	0.24	0.02	1.50	0.32	0.72	0.31	2.04	0.08	1.41	0.19	0.45	0.01
	4 2.00	0.53	1.88	0.21	0.96	0	1.52	0.14	0.76	0.20	0.32	0.02	2.00	0.51	0.96	0.30	2.72	0.09	1.88	0.26	0.60	0.02
	5 2.50	0.31	2.35	0.18	1.20	0	1.90	0.19	0.95	0.21	0.40	0.03	2.50	0.54	1.20	0.15	3.40	0.10	2.35	0.21	0.75	0.02
	6 3.00	0.25	2.82	0.16	1.44	0	2.28	0.22	1.14	0.20	0.48	0.02	3.00	0.44	1.44	0.10	4.08	0.05	2.82	0.20	0.90	0.01
	7 3.50	0.10	3.29	0.11	1.68	0	2.66	0.24	1.33	0.17	0.56	0.01	3.50	0.28	1.68	0.17	4.76	0.11	3.29	0.21	1.05	0
	8 4.00	0.06	3.76	0.07	1.92	0	3.04	0.21	1.52	0.12	0.64	0.01	4.00	0.11	1.92	0.04	5.44	0.15	3.76	0.18	1.20	0.01
	9 4.50	0.03	4.23	0.04	2.16	0.01	3.42	0.20	1.71	0.08	0.72	0.01	4.50	0.04	2.16	0.01	6.12	0.27	4.23	0.15	1.35	0.01
Right Bank	5.00	0	4.70	0	2.40	0	3.80	0	1.95	0	0.84	0	5.00	0	2.40	0	6.80	0	4.70	0	1.50	0
Feature Type		Pool	, T	211n	p;	ffle	D,	un	D,	un	D.	un	D,	201	D,	ool	D,	ın	D,	201	ъ	un
(riffle, run, or poo	01)	1 001	r	vuii	1/1	1110	1/	uil	1/	uil		ull	Г.	<i>7</i> 01	1.(<i>7</i> 01	1/1	411	г	<i>7</i> 01		ull

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as ≥ 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Date:

		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
	A	Department of
<u> </u>	Φ	Natural Resourges Sheet B – Site Characterization

(must be completed for each site)

Date & Time: 9/19/07 13:20 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): Collins Rd.
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494
Drought Conditions?: No drought x; Phase I □; Phase II □; P	hase III □; Phase IV □; Unknown □

Site Location:

LOCATIO	LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)									
Site 01	Easting (UTM X): 0480749	Horizontal Accuracy: (EPE / FOM / PDOP)	16 feet							
Site 11	Easting (UTM X): 0480856	Northing (UTM Y): 4446126	Horizontal Accuracy: (EPE / FOM / PDOP)	19 feet						

Photos:

10108.					
Photo ID#	oto ID# Photo Purpose		Photo Purpose	Photo ID#	Photo Purpose
101_165	upstream	101_166	downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

$Uses\ Observed \hbox{$\star$:}\ ({\it Uses\ actually\ observed\ at\ time\ of\ survey.})$

☐ Swimming	vimming		☐ Tubing	☐ Water skiing	
☐ Wind surfing	☐ Kayaking	☐ Boating	□ Wading	☐ Rafting	
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:	
Describe: (Include number of it when conducting interviews.)	individuals recreating, photo-de	ocumentation of evidence of recreat	ional uses, etc. Use Data Sheet L	2- Recreational Use Interview	

Data Sheet B Page 1 of 3

Natu	ıral Resaurae	et B – Site Characteriza	tion (continu	ed)		
		mote or impede recreational uses. At			ns of interest.))
☐ City/county parks	☐ Playgrounds	☐ MDC conservation land				l Residential
☐ Campgrounds	☐ State parks	☐ National forests	☐ Nature	trails	☐ Stairs	s/walkway
☐ Boating accesses	☐ Fence	☐ No trespass sign	X Steep s	slopes	☐ Other	r:
		1 reference in "Photos" section)				
□ Roads	☐ Foot paths/prin	nts Dock/platform	☐ Camping	Sites \square	☐ Rope sw	rings
RV / ATV Tracks Comments / Other:	☐ Fire pit/ring	☐ NPDES Discharge	e 🗆 🗆 Fishing 🛚	Γackle [Livestoc	k Watering
ostrate*: (These value	s should add up to 100%.)					
% Cobble	% Gravel	70% Sand	% Silt	30% Mud/C	Clay	% Bedrock
uatic Vegetation*: Duckweed Algae arrowhead	(Note amount of vegetatio	n or algal growth at the assessment si	ite)			
nter Characteristic	CS*: (Mark all that apply.) ☐ Sewage ☐ M		X None	□ Othe	er:	
Color:	☐ Clear ☐ G	reen Gray	☐ Milky	X Othe	er: brown	
Bottom Deposit:	☐ Sludge ☐ Sc	olids X Fine sediment	ts 🗆 None	☐ Othe	er:	
Surface Deposit:	□ Oil □ So	cum 🗆 Foam	X None	☐ Othe	er:	

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

^{*}This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

	====	Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resourcest B – Site Characterization (continued)
	A	Department of
<u> </u>	\square	Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

mments	: (Please record any additional commen	ts here.)			
Rained las	st night				
	ONR biologists doing work at this sit arge pools due to beaver dams.	te, and they commented the	hat a few weeks ago the	re was very little to no w	rater in streams, but now

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Sign	ature:	Date of Surve	ey: 9/19/07
Organization:	Applied Environmental Solutions	Position:	Environmental Specialist

Data Sheet B Page 3 of 3

Field Data Sheets for Recreational Use Stream Surveys Data Sheet C - Field Survey Results

	ri							Dissolve	ed Oxygen		
Departr Latural	Ment of Si	te #: 9	– w hank width and	water)			Date:	9/19/2007	Time:	13:20	-
Estimated Chamber meisic	(11	i) (neight between to	w bank widin and	water)]	Dissolved Oxygen:	10.71	_(mg/L)	
GPS Location - Easting (U	UTM X), Northing (UT	M Y), Horizontal Ac	curacy Estimate (EPE / PDOP / FOM	1)					_	
01 UTM X:	480749	UTM Y:	4446270	+/-	16	(feet)]	Dissolved Oxygen:	143.4	(% sat)	
11 UTM X:	480856	UTM Y:	4446126	+/-	19	(feet)		_		_	
								Specific Cond:	337.5	(µS/cm)	
Average Stream Width:	6.0	(meters) Length of	Survey Segment:	15	0 (meters)		_		_	
(To determne Length of R	Reach)		(20x avera	age stream width)			W	/ater Temperature:	30.8	_(°C)	
Field Staff:		Jennifer Hrabik and	l Justyn Foth								

	Transect Cross-Section																					
		01		02	0	3	0	4	0:	5	0	6	0	7	0	8	09	9	1	0	1	1
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.24	0.01	0.26	0.06	1.00	0.46	1.00	0.51	1.00	0.21	0.78	0.08	0.25	0.04	0.26	0.04	0.59	0.25	0.67	0.04	0.71	0.30
2	0.48	0.01	0.52	0.10	2.00	0.58	2.00	0.57	2.00	0.25	1.56	0.10	0.50	0.06	0.52	0.06	1.18	0.29	1.34	0.08	1.42	0.40
3	0.72	0.01	0.78	0.10	3.00	0.61	3.00	0.63	3.00	0.26	2.34	0.11	0.75	0.10	0.78	0.10	1.77	0.29	2.01	0.09	2.13	0.35
4	0.96	0.00	1.04	0.09	4.00	0.70	4.00	0.69	4.00	0.22	3.12	0.12	1.00	0.11	1.04	0.13	2.36	0.20	2.68	0.12	2.84	0.27
5	1.20	0.03	1.30	0.02	5.00	0.80	5.00	0.81	5.00	0.21	3.90	0.13	1.25	0.16	1.30	0.18	2.95	0.16	3.35	0.13	3.55	0.31
6	1.44	0.02	1.56	0.11	6.00	0.75	6.00	0.72	6.00	0.25	4.68	0.15	1.50	0.21	1.56	0.21	3.54	0.14	4.02	0.16	4.26	0.30
7	1.68	0.01	1.82	0.05	7.00	0.74	7.00	0.75	7.00	0.19	5.46	0.17	1.75	0.21	1.82	0.21	4.13	0.17	4.69	0.26	4.97	0.30
8	1.92	0.01	2.08	0.07	8.00	0.65	8.00	0.61	8.00	0.21	6.24	0.15	2.00	0.18	2.08	0.19	4.72	0.21	5.36	0.26	5.68	0.28
9	2.16	0.01	2.34	0.06	9.00	0.45	9.00	0.40	9.00	0.28	7.02	0.08	2.25	0.12	2.34	0.08	5.31	0.24	6.03	0.24	6.39	0.24
Right Bank	2.40	0	2.60	0	10.00	0	10.05	0	10.00	0	7.80	0	2.50	0	2.60	0	5.90	0	6.70	0	7.10	0
Feature Type																						
(riffle, run, or pool)		Run		ool	Po		Po		Po		Rı		R	un	Ri	un	Po	ol	Po	ool	Po	ol

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as ≥ 1)

All measurements to be taken to the nearest 0.01 meter.

Signed:	Date:	
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Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resour pas Sheet B – Site Characterization
Department of
Natural Resourges Sheet B – Site Characterization

(must be completed for each site)

Date & Time: 9/19/07 14:10 Personnel (Data Collectors): Jennifer Hrabik, Justyn Foth	Site Location Description (e.g., road crossing): Redwood Rd.					
Current Weather Conditions: clear	Facility Name: PSF Locust Ridge					
Weather Conditions for Past 10 days: rainy/clear	Permit Number: MO 0118494					
Drought Conditions?: No drought x; Phase I □; Phase II □; Phase IV □; Unknown □						

Site Location:

LOCATION	LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)								
Site 01	Easting (UTM X): 0481702	Northing (UTM Y): 4445095	Horizontal Accuracy: (EPE / FOM / PDOP)	16 feet					
Site 11	Easting (UTM X): 0481623	Northing (UTM Y): 4444939	Horizontal Accuracy: (EPE / FOM / PDOP)	17 feet					

Photos:

10105.					
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
101_167 upstream		101_168	101_168 downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed*: (Uses actually observed at time of survey.)

☐ Swimming	☐ Skin diving	☐ SCUBA diving	☐ Tubing	☐ Water skiing
☐ Wind surfing	☐ Kayaking	☐ Boating	□ Wading	☐ Rafting
☐ Hunting	☐ Trapping	☐ Fishing	X None of the above	☐ Other:
Describe: (Include number of when conducting interviews.)	individuals recreating, photo-de	ocumentation of evidence of recreat	ional uses, etc. Use Data Sheet L	D- Recreational Use Interview

Data Sheet B Page 1 of 3

Le De	partment o tural Ressa)† \$4 854æ& tB-	- Site Character	ization (con	tinued)				
urrounding Cond					f evidence or unusual				
☐ City/county par	ks 🗆 Playg	rounds	MDC conservation l	ands	Jrban areas	□ Rı	☐ Rural Residential		
☐ Campgrounds	☐ State	parks 🗆	National forests		Nature trails	□ St	☐ Stairs/walkway		
☐ Boating accesse	Boating accesses								
vidence of Huma	n Usoša (m. 1								
vidence of Huma					orași a Gitar				
☐ Roads ☐ RV / ATV Trac		aths/prints	☐ Dock/platform☐ NPDES Discha		nping Sites hing Tackle	Rope	stock Watering		
Comments / Other: none ubstrate*: (These va	lues should add up to	o 100%.)							
% Cobble	% (Gravel	30% Sand	% S	ilt 70% Mu	ud/Clay	% Bedrock		
Algae arrowhead	1*: (Note amount of	vegetation or al	gal growth at the assessme	ent site)					
Vater Characteris	tics*: (Mark all th	nat apply.) Musky	☐ Chemical	X No	ne □ (Other:			
Color:	☐ Clear	☐ Green		☐ Mi		Other: brow	m		
Bottom Deposit:	□ Sludge		X Fine sedin		<u> </u>	Other:	11		
Surface Deposit:	□ Oil		☐ Foam	X No		Other:			

Missour Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B Page 2 of 3

^{*}This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that effect another use.

		Missour <u>Field Data Sheets for Recreational Use Stream Surveys</u> Department of Natural Resourcest B – Site Characterization (continued)
<u> </u>	A	Department of
<u> </u>		Natural Resolution B – Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

o.	mments: (Please record any additional comments here.)
	Rained last night

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature:	Date of Survey:9/19/07
Organization: Applied Environmental Solutions	Position: Environmental Specialist

Data Sheet B Page 3 of 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet	C - Field	Survey	Results

		<u></u> Mis	sour	İ												Dissolved Oxygen							
	Waterbo	iii ID)⊝r	oartn	îlênt o	f ur <u>ç</u> es	Site #: (m) (hei	1 ght betw	0 veen low	bank wi	dth and v	vater)					Date: 9/19/2007 Time: _						:10	
																D	issolved	Oxygen:	5.58 (mg/L)				
	GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 1 UTM X: 481702 UTM Y: 4445095 +/- 16 (feet)										Dissolved Oxygen: 67.5 (% sat)												
	11	UTM X:		481623			UTM Y:		4444939			+/-	17	(feet)		"	13301704	Oxygen.	(70 500)				
										.1				60			Specifi	ic Cond:	338.2 (μS/cm)				
	_	e Stream Wermne Leng			8.0		((meters)		ength of S 0x averag	-	-		60	(meters)		ater Temp	erature:	23	3.7	(°C)		
				,					·		5	,									(-)		
	F	ield Staff:				Jenr	nifer Hra	bik and	Justyn Fo	oth													
										Trans	ect Cro	ss-Sect	ion										
		01		02	0)3	0	4	0	5	0	16)7	0)8	0	9	1	.0	1	1	
Station	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Denth (m)	Distance (m)	Denth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	1.00	0.23	0.11	0.25	0.78	0.26	0.67	0.37	0.27	0.04	0.65	0.12	0.80	0.10	0.11	0.61	0.90	0.55	0.61	0.30	0.58	0.10	
1																							
2	2.00	0.56	0.22	0.41	1.56	0.49	1.34	0.55	0.54	0.05	1.30	0.14	1.60	0.16	0.22	0.64	1.80	>1	1.22	0.35	1.16	0.15	
3	3.00	0.60	0.33	0.42	2.34	0.56	2.01	0.54	0.81	0.07	1.95	0.15	2.40	0.22	0.33	0.51	2.70	>1	1.83	0.28	1.74	0.22	
4	4.00	0.61	0.44	0.38	3.12	0.54	2.68	0.52	1.08	0.09	2.60	0.20	3.20	0.21	0.44	0.35	3.60	0.75	2.44	0.23	2.32	0.26	
5	5.00	0.65	0.55	0.35	3.90	0.48	3.35	0.40	1.35	0.09	3.25	0.18	4.00	0.15	0.55	0.28	4.50	0.71	3.05	0.20	2.90	0.30	
6	6.00	0.58	0.66	0.40	4.68	0.42	4.02	0.30	1.62	0.09	3.90	0.19	4.80	0.20	0.66	0.21	5.40	0.55	3.66	0.22	3.48	0.35	
7	7.00	0.55	0.77	0.50	5.46	0.35	4.69	0.16	1.89	0.08	4.55	0.22	5.60	0.19	0.77	0.24	6.30	0.52	4.27	0.21	4.06	0.31	
8	8.00	0.55	0.88	0.62	6.24	0.15	5.36	0.08	2.16	0.09	5.20	0.20	6.40	0.21	0.88	0.21	7.20	0.40	4.88	0.40	4.64	0.24	
0	9.00	0.50	0.99	0.63	7.02	0.08	6.03	0.03	2.43	0.06	5.85	0.11	7.20	0.23	0.99	0.15	8.10	0.33	5.49	0.43	5.22	0.12	
Right Bank	10.00	0.60	11.20	0.03	7.80	0.00	6.70	0.03	2.75	0.00	6.50	0.11	8.00	0.23	11.30	0.13	9.00	0.33	6.10	0.43	5.80	0.12	
Feature Type	10.00	0.00	11.20	ı u	7.00	U	0.70	I 0	4.13	ı ^U	0.50	U	0.00	ı ^U	11.50	l 0	9.00	U	0.10	U	3.00	U	
(riffle, run, or pool)	P	ool	P	ool	Po	ool	Po	ool	Rı	un	Po	ool	Po	ool	Po	ool	Po	ol	Po	ool	Po	ool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as ≥ 1)

All measurements to be taken to the nearest 0.01 meter.

Signed:	Date:	
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Site# 1 Photo ID# 101-148, Upstream



Site# 2 Photo ID# 101-150, Upstream



Site# 1 Photo ID# 101-149, Downstream



Site# 2 Photo ID# 101-151, Downstream



Site# 3 Photo ID# 101-152, Upstream



Site# 4 Photo ID# 101-154, Upstream



Site# 3 Photo ID# 101-153, Downstream



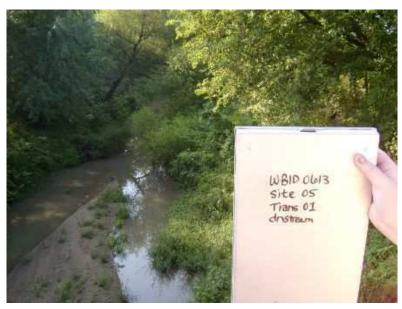
Site# 4 Photo ID# 101-155, Downstream



Site# 5 Photo ID# 101-156, Upstream



Site# 6 Photo ID# 101-158, Upstream



Site# 5 Photo ID# 101-157, Downstream



Site# 6 Photo ID# 101-159, Downstream



Site# 7 Photo ID# 101-161, Upstream



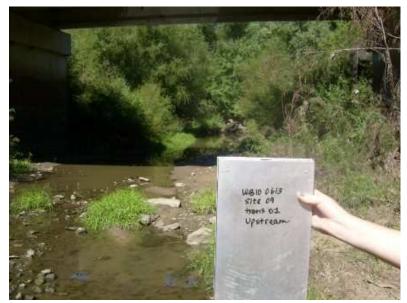
Site# 8 Photo ID# 101-163, Upstream



Site# 7 Photo ID# 101-162, Downstream



Site# 8 Photo ID# 101-164, Downstream



Site# 9 Photo ID# 101-165, Upstream



Site# 10 Photo ID# 101-167, Upstream



Site# 9 Photo ID# 101-166, Downstream



Site# 10 Photo ID# 101-168, Downstream